

## AMENDMENTS

Kindly amend the application as follows.

In the claims:

**Claim 1 (Previously Amended)**

1. A self-monitoring flow-through heater, comprising:
  - (a) a passageway providing a flow conduit;
  - (b) a wire disposed in the passageway for heating and monitoring temperature of a fluid flowing through the tube; the wire having a high temperature coefficient of resistance, so that monitoring voltage across and/or current through the wire measures mean temperature of the wire and thereby indirectly of the fluid in the passageway;
  - (c) a current-sensing first resistor, the resistor being electrically connected in series with the wire;
  - (d) a voltage regulator and a first potentiometer, for applying a constant voltage across the wire, voltage drop across the first resistor being directly proportional to the current flowing through the wire, the sensed voltage across the resistor decreasing as the mean temperature of the wire increases, the wire thereby functioning as a temperature sensor;
  - (e) an operational amplifier, for amplifying the voltage sensed across the first resistor;
  - (f) an adjustable voltage divider comprising a fixed second resistor, a second potentiometer, and a comparator, for comparing the amplified voltage with a set-temperature voltage generated by the adjustable voltage divider; and
  - (g) a first switch, to provide an additional path to ground for the voltage regulator through a third potentiometer, when the set temperature is reached and the comparator goes high, turning on the first switch, thereby lowering the output

voltage applied to the wire by the voltage regulator, whereby the voltage applied to the wire lies between two adjustable values controlled by the first and third potentiometers.

**Claim 5 (Previously Added)**

5. The self-monitoring flow-through heater of claim 1, further comprising:

- (h) a light-emitting diode; and
- (i) a second switch;

for registering point at which the set temperature is reached.

**Claims 2 – 4 (Previously Cancelled)**

**Claim 6 (Previously Added; Currently Amended)**

6. A self-monitoring flow-through heater, comprising:

- (a) a passageway providing a flow conduit; and
- (b) a straight bare platinum wire disposed in the passageway, for heating and monitoring temperature of a fluid flowing through the ~~tube~~ passageway, and for catalyzing chemical reactions that are catalyzed by platinum; the wire having a high temperature coefficient of resistance, so that monitoring voltage across and/or current through the wire measures mean temperature of the wire and thereby indirectly of the fluid in the passageway; the wire being coaxially disposed in the passageway, to provide a minimum operating volume.

**Claims 7 and 8 (Cancelled)**

## SUMMARY OF THE OFFICE ACTION

Claims 1 and 5 – 8 are pending in the application.

Claims 1 and 5 are allowed.

Claims 6 – 8 are rejected.

The drawings filed on 18 May 2004 are accepted by the Examiner.